Status

OMI Data Systems

Jacques Claas
KNMI, De Bilt/The Netherlands

Marghi Hopkins
Adnet Systems Inc., Lanham MD.

Main purpose of current work

- start reprocessing the L0 -> L1b data end January 2007 using a Time Dependent Operational Parameter File (TDOPF)

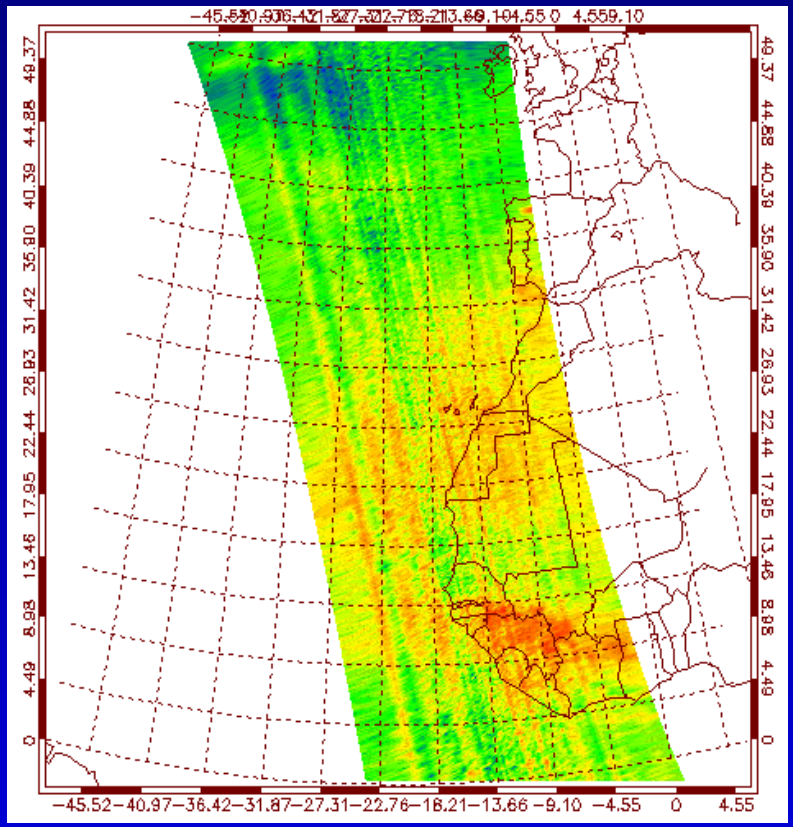
Reason for reprocessing

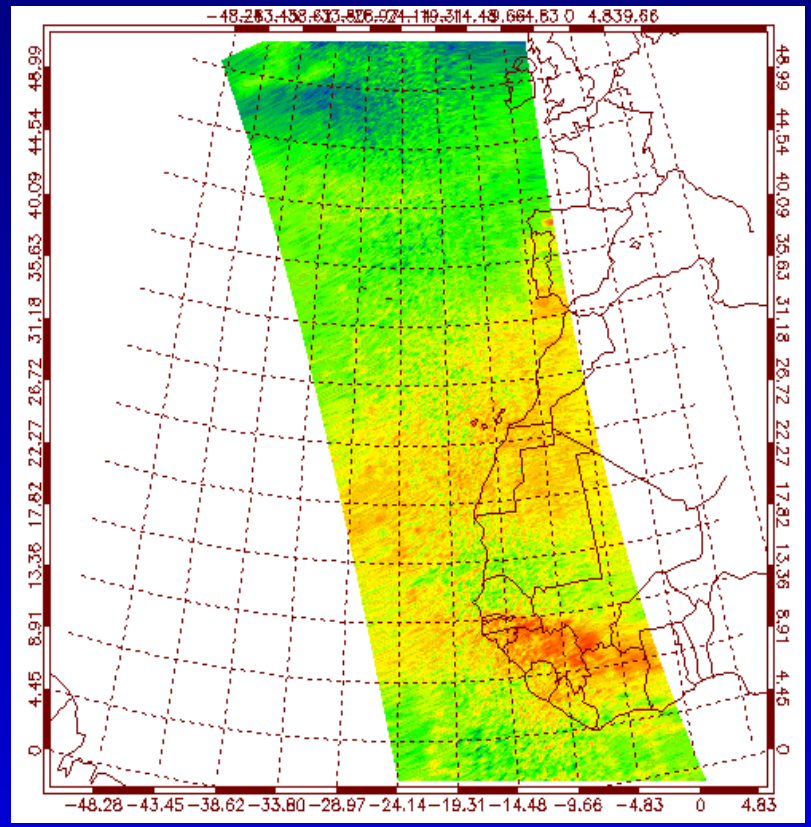
- an improved straylight algorithm has been developed
- a major quality improvement of the L1b data is achieved by making the Operational Parameter File time dependent
- up to now, several versions of the L1b S/W have been used and several OPFs, resulting in an inconsistent data collection; reprocessing will create a new, consistent, data collection

Expected result

- improved quality of L2 products (e.g. reduced stripes in the L2 NO2 product)

The OMI NO2 product and stripes



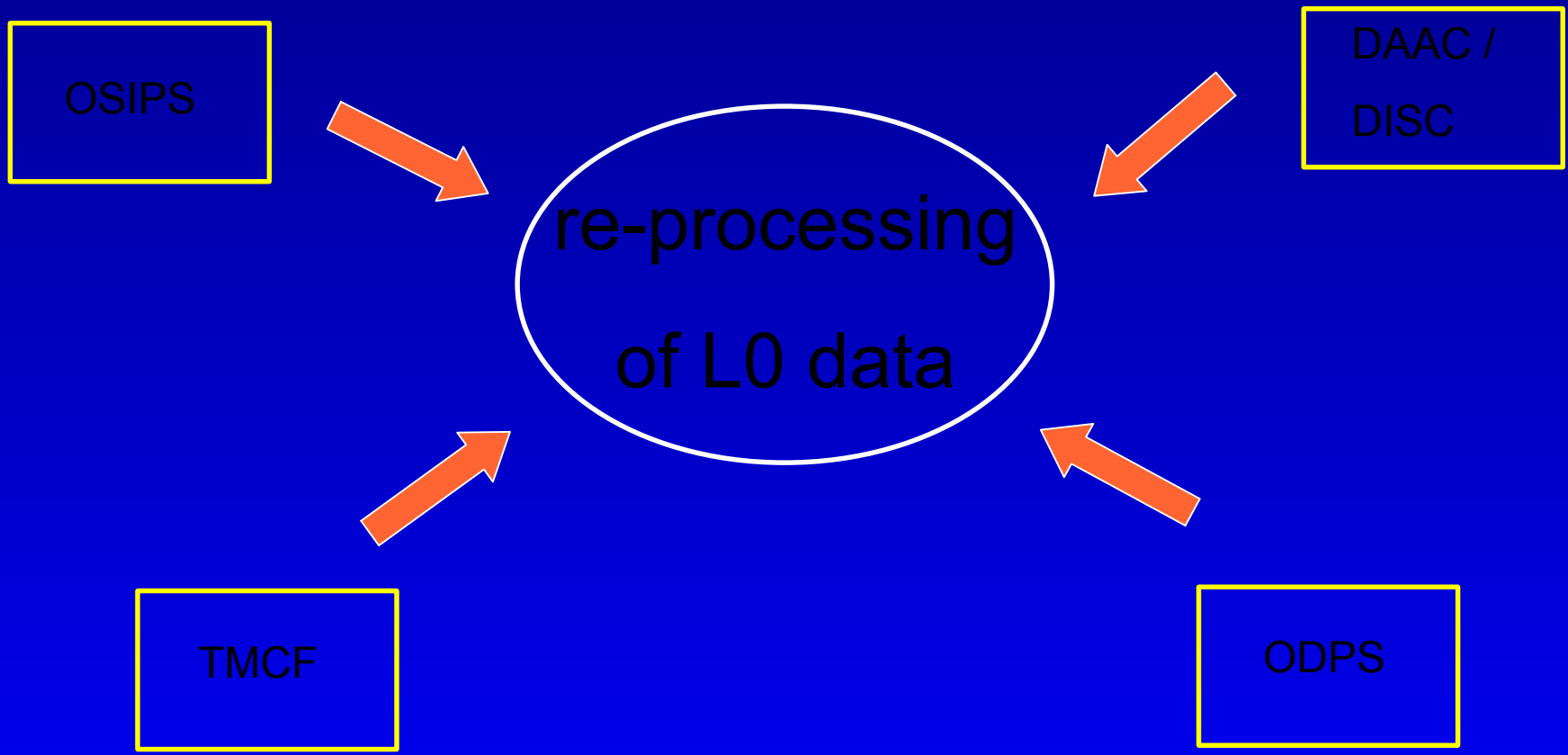


Currently stripes are removed by e.g. using in the NO2 retrieval algorithm an optimised irradiance spectrum, that has been composed from several irradiance measurements obtained on different dates.

With the use of the TDOPF, as part of the L0 -> L1b processing, this is in principle not needed anymore.

Systems involved in reprocessing

What needs to be done before reprocessing can start?

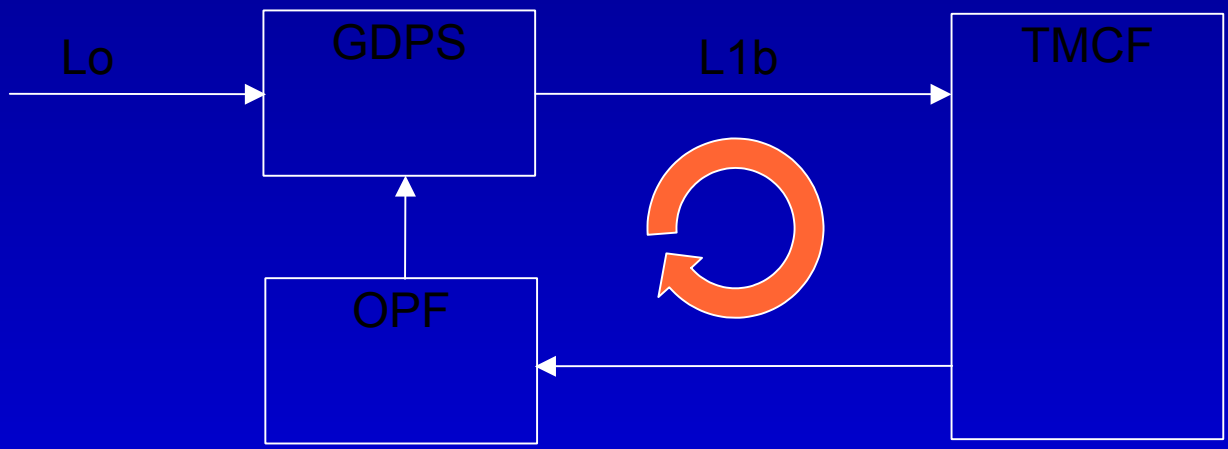


Work to be carried out on the OSIPS

- ✓ Install new GDPS version for the L0 -> L1b data processing (optimized straylight correction and radiometric correction factors)
- ✓ Run GDPS in test stream on specific old L0 dataset
- Analyze/compare the resulting L1b data with old L1b data
- Using reprocessed L1b data, generate L2 products and compare with old L2 products
- Integrate and test updated L2 PGEs (if needed)

Work to be carried out on the TMCF

- The Trend and Monitoring In-Flight Calibration Facility (TMCF@KNMI) generates the Time Dependent OPF:



- The very many calibration parameters in the TDOPF will be frequently updated (daily, weekly, monthly,….) in a highly automated and efficient way

Work to be carried out on the TMCF

- Setting up the TDOPF configuration

  - determine which datasets are time dependent

  - determine update frequency of these dynamic datasets

  - determine how these dynamic datasets must be generated (from which dataproducts, with which time dependency)

Work to be carried out on the ODPS

- L2 PGEs currently running on the OMI Dutch Processing Site (ODPS): OMDOAO3, AERO, CLDO2 and NO2A
- Run these L2 PGEs using reprocessed L1b data
- Analyze/compare new L2 product with old L2 product
- Integrate and test updated L2 PGEs (probably needed)

- Remark: especially the DOAS based L2 products suffer from the so-called stripes. The correction for these stripes is currently done in the L2 PGEs itself.

Work related to the DISC transition to S4PA

- OMI is currently creating ECS collection version 2 data
- When using the TDOPF, OMI will start creating ECS collection version 3 data for the reprocessed data
- In parallel, for forward processing ECS collection version 2 data will still be generated (until reprocessing catches up)
- The DAAC/DISC will transition from ECS to S4PA
- Careful coordination with the DISC is needed when creating ECS collection 3 in S4PA
- Interface testing is needed for both OSIPS and ODPS
- Obtain information on S4PA during Data Systems Working Group meeting in Boulder

Work related to the TDOPF development

- System and acceptance tests were carried out July 11- August 3
- Very few issues found, most issues related to inconsistencies between SVVP and automated test suite
- No major issues
- Rework has been carried out; delta tests have been finished last week

Overview of Data Production

- OMI SIPS processing is routine:
  - Generating ECS Collection 2
  - Sending Level 1B and Level 2 products to the Goddard DISC ECS Archive
  - Sending one Level 2 Gridded product to the Goddard DISC S4PA archive
  - Preparing for reprocessing for Collection 3

- ODPS processing is routine:
  - Generates L2 products on basis of ingested L1b PDS data
  - Ingests 3 NRTS products from the OMI SIPS for further fast distribution

Interesting Events Encountered

- Serious disk failures

  - OMISIPS moved to Raid Falcons
  - ODPS moved to EMC

- Folding Mirror Anomaly

  - Investigated some changes to the way some PGEs run
  - Migration from using daily irradiance measurements to using an averaged irradiance

- Time Dependent Operational Parameters File

  - Upcoming major change in processing approach